

WHAT IS CLAIMED IS:

1. A drive system comprising at least one vibrating motor having at least one vibration generator each as well as at least one resonator each and a device that is driven by the at least one motor, the resonator having a contact area that cooperates with a surface of the device to drive said device, at least one of the resonator contact area and the device surface having at least one of a surface texture or surface profile configured to guide the device.
2. The drive system of Claim 1, wherein the vibrating generator is made of a piezoelectric material.
3. The drive system of Claim 2, wherein the contact area comprises an indentation or protrusion.
4. The drive system of Claim 2, wherein the device surface driven by the contact area has a profile comprising an indentation or protrusion.
5. The drive system of Claim 2, wherein the device surface driven by the contact area has a profile comprising an indentation produced by wear.
6. The drive system of Claim 2, wherein the contact area on the resonator comprises regions with differing friction coefficients.
7. The drive system of Claim 2, wherein the surface driven by the contact area surface comprises regions with differing friction coefficients.
8. The drive system of Claim 2, wherein the surface driven by the contact area comprises a plurality of indentations or protrusions or several regions with differing friction coefficients, with each indentation, protrusion or region of differing friction coefficient being spaced apart in regular intervals with respect to each other.
9. The drive system of Claim 2, wherein the surface driven by the contact area surface comprises comprising regions with differing friction coefficients.
10. The drive system of Claim 8, wherein the indentations or the protrusions have a respective depth or height of about .05 – 10 mm.
11. The drive system of Claim 8, wherein the indentations or the protrusions have a respective depth or height of about .5 – 3 mm.
12. The drive system of Claim 2 comprising at least two motors that are arranged in the same orientation to drive the driven element in the same direction.
13. The drive system of Claim 8, wherein the indentations or the protrusions have a respective depth or height of 0.5 – 3 mm.

14. The drive system of Claim 12, wherein the motors are urged against the driven device with respective forces that differ from each other.
15. The drive system of Claim 12, wherein the motors are controllable individually.
16. The drive system of Claim 12, wherein the motors are controllable in parallel.
17. The drive system of Claim 12, wherein the motors are operable at differing frequencies.
18. The drive system of Claim 12, wherein the motors each operate at differing amplitudes.
19. The drive system of Claim 12, wherein the motors move the driven device in two different directions.
20. The drive system of Claim 2, wherein the force of the generated motion is predetermined by the position of the driven device or the angle of the transducer relative to the driven device when the excitation to the motor remains the same.
21. A drive system comprising at least one vibrating motor having a vibration generator driving a resonator, the resonator having a contacting area engaging a driven surface of a driven element, one of the contacting area and driven surface having areas of different friction arranged to guide the driven element.
22. The drive system of Claim 21 wherein the driven surface comprises indentations or protrusions having a respective depth or height of about .05 – 10 mm.
23. The drive system of Claim 21 wherein one of the contacting surface and driven surface comprise regions with differing friction coefficients spaced apart at regular intervals.
24. The drive system of Claim 21 wherein the driven surface comprises indentations or protrusions spaced apart at regular intervals.
25. A drive system comprising at least one vibrating motor having a vibration generator driving a resonator, the resonator having a contacting area engaging a driven surface of a driven element, one of the contacting area and driven surface being located on a protrusion extending into indentations formed in the other of the contacting area and driven surface an amount sufficient to guide the driven element relative to the resonator.
26. The drive system of Claim 25 wherein the driven surface comprises an indentation and the contacting surface comprises a protrusion with the protrusion having lateral sides contained within the indentation.

27. The drive system of Claim 25, wherein the driven surface comprises a protrusion and the contacting surface comprises an indentation.
28. The drive system of Claim 27, wherein the driven surface comprises an indentation and the contacting surface comprises a protrusions with the protrusion and being formed by curved surfaces and the protrusion smaller than the indentation.
29. The drive system of Claim 25 wherein one of the driven surface and the contacting surface comprises a surface with multiple curves forming hills and valleys into which the protrusion is guided by contours of the multiple curves.